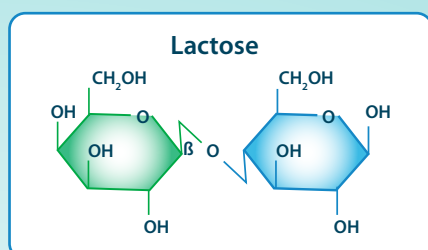


Role of Lactose in Infant Gastrointestinal Health

Lactose is a disaccharide which is a unique component of human breast milk and most mammalian milks. Human breast milk contains 70g/L of lactose which contributes 40 % of the caloric value and has a low glycaemic index.¹

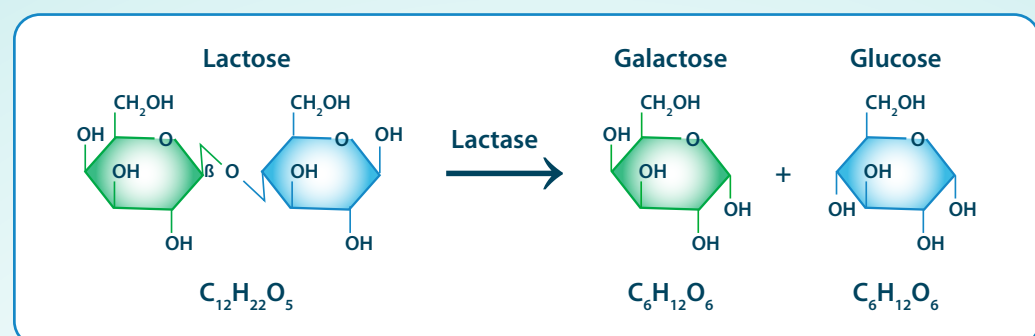
Structure of lactose in shaping infant gut microbiota¹

- Glycosidic link in lactose is rare in nature and it protects lactating breast and infant's gastrointestinal tract from infections by selectively limiting micro-organisms that have difficulty in digesting lactose.



Prebiotic effect^{1,2}

Lactose is cleaved into glucose and galactose by lactase in the gastrointestinal tract.



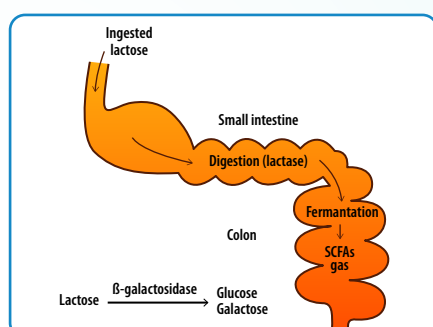
These monosaccharides are then actively absorbed in the small intestine.

- If lactose is undigested, it reaches the colon where it gets fermented by the intestinal microbiota, favouring the colonisation of *bifidobacteria* and other lactic acid bacteria, thus acting as a pre-biotic.

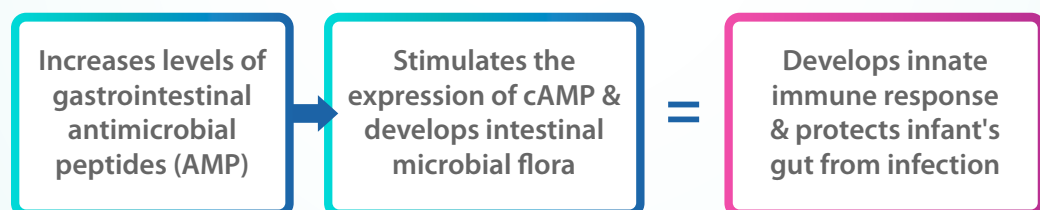
Increased mineral absorption¹

Lactose enhances calcium absorption and retention.

- Fermentation of lactose in large intestine results in formation of short chain fatty acids and reduction of luminal pH.
- Lower the pH, higher is the solubility of calcium and other minerals thereby increasing passive absorption in the colon.



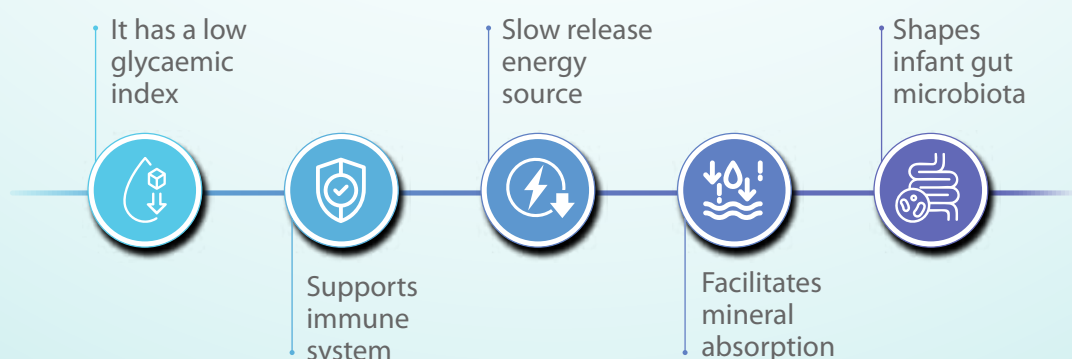
Role in protecting infant gut & developing innate immune response^{1,3}



Clinical evidence on addition of lactose to infant formulas:

- According to a study, term-born, formula-fed infants with constipation benefit from an adapted formula with high amounts of lactose and magnesium because it enhances the water content of their stools.⁴

Lactose is a preferred carbohydrate for infants and children because¹...



References:

- Romero-Velarde E, Delgado-Franco D, García-Gutiérrez M, et al. The Importance of Lactose in the Human Diet: Outcomes of a Mexican Consensus Meeting. *Nutrients*. 2019;11(11):2737. Published 2019 Nov 12. doi:10.3390/nu11112737
- Grenov B, Briend A, Sangild PT, et al. Undernourished Children and Milk Lactose. *Food and Nutrition Bulletin*. 2016;37(1):85-99. doi:10.1177/0379572116629024
- Cederlund A, Kai-Larsen Y, Printz G, Yoshio H, Alvelius G, Lagercrantz H, et al. Lactose in Human Breast Milk an Inducer of Innate Immunity with Implications for a Role in Intestinal Homeostasis. (2013) *PLoS ONE* 8(1): e53876.
- Infante, D.D., Segarra, O.O., Redecillas, S.S. et al. Modification of stool's water content in constipated infants: management with an adapted infant formula. (2011) *Nutr J* 10, 55